

MSC's Many Cape Operations Described

Plan Suggested For Naming Of Spacecraft

An imaginative Tidewater citizen has detected or at least thought she detected a trend in the naming of the capsules of the first two manned space flights.

The lady in question recently wrote a letter to the Public Affairs Office suggesting that a message to all people be given by the use of the first letter of each flight to spell out an appropriate motto, and gave as an example: "FLIGHTS FOR LIBERTY."

The example was set up as follows:

F reedom 7
L iberty Bell 7
I ntrepid
G alaxy Express
H ighflyer
T ruth Transport
S tar Sailor

F ree Flight
O ld Glory
R ecord Breaker

L unar Special
I ndependence
B eacon Ship
E arly Bird
R eflection
T rail Blazer
Y ankee Doodle

It is felt that this lady, like many other persons, is not aware of the fact that the naming of the spacecraft in question is strictly up to the astronauts and their naming of the first two capsules may or may not have been made with a definite pattern in mind.

Purser Will Attend Special Aerospace Symposium in La.

Paul E. Purser, Special Assistant to the Director of Manned Spacecraft Center, will attend and participate in an Aerospace Education Symposium to be held at Ruston, La., November 30, and December 1. The Symposium will be co-sponsored by the Air Force Association Aerospace Education Foundation, and Louisiana Polytechnic Institute.

Purser is scheduled to speak on Project Mercury and Apollo to the general session on December 1, on "Preparing For and Living in the Space Age", and following that will be a panel member for the ensuing discussion.

He is also scheduled to be a member of a "Rocketry" panel later that day, dealing with use of rocketry in the Mercury and Apollo Projects.



THE ENGINEERING AND OPERATIONS Building at Cape Canaveral which contains many of the offices of Manned Spacecraft Center vital to the activities there is shown above.

Hangar "S" Facilities Listed

The Manned Spacecraft Center Cape Operations include a number of complex and diversified problems, all of which fall under the direction of G. Merritt Preston, Manager of MSC's Cape Operations.

The nerve center of these operations is Hangar "S" the base of the Preflight Operations Division, of which Preston is Chief, with D. O. Black as technical assistant. Other major functions have offices in the Mercury E & O Building, located adjacent to Hangar "S".

There are five branches under the Preflight Operations Division: *Launch Coordination* (Atlas) headed by B. P. Brown and P. R. Maloney;

Inspection Office headed by F. M. Crichton;

Capsule Systems under J. J. Williams;

Instrumentation under J. C. Moser; and

Technical Services headed by A. M. Eiband.

The offices located in the E&O Building include the Business Administration Office, Robert H. Clark, Chief; Contracting Officer Representative, Harold Collins; Property Administrator, J. Edrington; Weather, Ernest Amman and Harlan Higgins; Mercury Network, Goddard Coordinator James Satterfield and MSC Liaison Robert D. Harrington; Reliability and Flight Safety, F. J. Bailey; Data Coordination, Richard G. Arbic; and offices of Life Systems and Public Affairs.

At the end of October there were 591 personnel directly assigned to the MSC Cape Operations. They included 186 Civil Service employees, 374 from McDonnell Aircraft, 23 from Federal Electric, and 8 were McDonnell contractors.

Spelled out briefly the Cape Operations Mission consists of the preparation, checkout, mating and launch of the Mercury Capsule.

The responsibility begins when the capsule arrives at the "Skid Strip" at Cape Canaveral via airlift and continues until the preliminary "shake-down" of the capsule after the capsule recovery has been effected.

A McDowell team, under constant surveillance of MSC Engineers and Inspectors, follows the capsule from time of arrival, through each operation and test, until after recovery. All pre-flight testing and servicing is conducted at Hangar "S" which contains all

(Continued to page 3)

Attention May Be Required On Designation of Beneficiary

The rapid expansion of Manned Spacecraft Center has resulted in a comparatively large number of personnel transferring into the organization from other governmental agencies. In view of this the Personnel Office pointed out this week that when an employee transfers from one government agency to another, his designation of beneficiary under the Federal Group Life Insurance Program, and for unpaid compensation, is automatically canceled.

Any Manned Spacecraft Center employees who previously made a designation of beneficiary for unpaid compensation, or for Federal Group Life Insurance, at an installation other than NASA, are reminded they are no longer valid.

Such employees, if they wish to again name a beneficiary, should contact the Administration Section of the Personnel Office and file a new designation.

Military Leave

Public Law 378, 87th Congress amended 5 U.S.C. 302 by changing the period for using military leave from a fiscal year basis to a calendar year basis, effective January 1, 1961.

Those NASA employees who have already taken 15 calendar days military leave in calendar 1961, will not be entitled to additional military leave until January 1, 1961.

Key MSC Personnel Are Interviewed by USIA Staff Writer

John Uhler, a United States Information Agency writer, was a visitor to Manned Spacecraft Center last week. The purpose of his visit was to interview key MSC personnel prior to preparing a series of news releases to be released worldwide following the manned orbital flight.

Among those to be interviewed prior to the completion of the releases are MSC Director Robert R. Gilruth, Associate Director Walter C. Williams, Christopher C. Kraft of Flight Operations Division, and Dr. William K. Douglas and Dr. Robert B. Voas, both of the Office of the Director.

Upon completion the releases will be translated into many languages and forwarded to U.S. Embassies all over the world for release to news media following the orbital mission.

HOUSTON SITE OFFICES MOVE TO RICH BUILDING
The Manned Spacecraft Center offices in Houston have been moved from Gulfgate Shopping City to the Rich Building on Telephone Road.

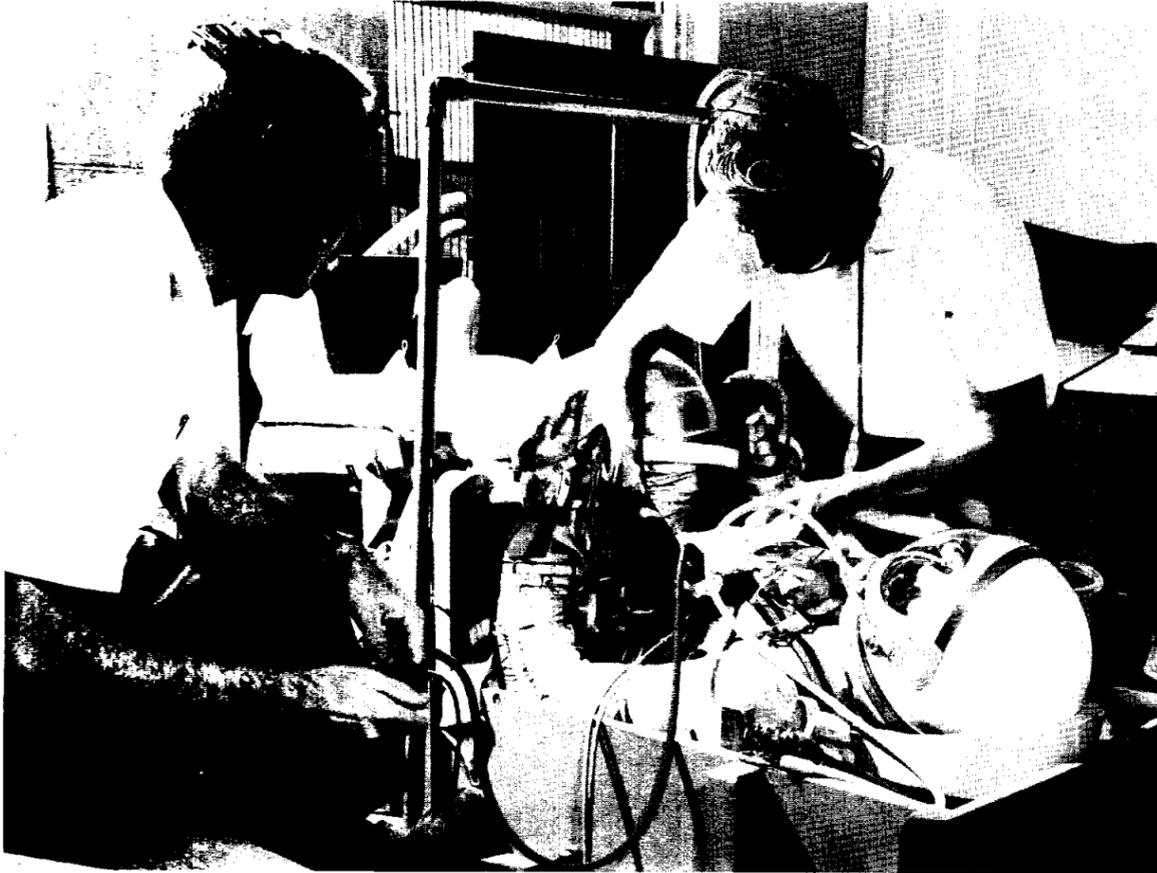
The Rich Building was leased on November 10, thus permitting the move from the office space which was temporarily donated free to MSC by the Gulfgate officials.

Program is Planned To Train Speakers

The Public Affairs Office will inaugurate a training and indoctrination program for public speakers by the end of the year.

This program will be developed in support of the NASA policy of encouraging qualified employees to accept speaking engagements and the purpose of the training program will be to equip individuals to discuss the goals and accomplishments of Manned Spacecraft Center within the framework of NASA policy.

Meetings of the group will be scheduled periodically for the purpose of cross-training speakers in the various disciplines and review of speech materials to insure accuracy as well as conformity with policies and security regulations.



SUIT TECHNICIAN Joseph Schmitt checks all the equipment on an astronaut's suit as he lays in the couch in the suit room, while Dr. William K. Douglas, left, listens in and watches the proceedings. (above). At the left, astronaut John Glenn checks an item of equipment on his suit. At lower left, astronaut Scott Carpenter points out the unusual functions of a watch being tested to "Dee."



PART OF THE LIVING ROOM area is shown with Nurse "Dee" O'Hara checking names on documents for the astronauts to read before placing them on the table.



Photos
by
BILL TAUB



MEDICAL TECHNICIAN M/-Sgt. Quinton R. Herrin is pictured above checking bio-sensors used by the astronauts during their training and flight missions. Below: "Dee" smiles.

Hangar S Includes The Crew Quarters

Hangar S at Cape Canaveral houses many interesting operations and facilities, among which is the crews quarters, used as a base of operation by the astronauts when they are at the Cape on business, as well as just prior to the manned missions of Project Mercury.

Included in the set-up which is air-conditioned is a conference room which has blackboard and projection facilities in order that the astronauts and the people with whom they confer may have graphic and visual aids available when needed.

There is also a suit room, the office occupied by the doctors and the nurse when they are present, an examination room, and the combination living room-bedroom area where the astronauts stay for a 72-hour period prior to a scheduled manned space mission. During such periods their food is brought to them.

Because of the nature of the operation, only visitors with official business are allowed to enter during normal periods and it is virtually impossible to gain admittance prior to a flight.

Overseeing much of the activity in the crews quarters is Air Force Lieutenant Dolores "Dee" O'Hara, the astronauts' nurse. Her present duties have put her in the limelight during the past few months and she has made a number of personal appearances.

On October 27, she was the honor guest at the Centennial Celebration of the Woman's Hospital of Philadelphia (Penna.). During the occasion, she was presented with a silver tray and a citation which read:

"To Lieutenant Dolores O'Hara who in the performance of her duties has brought recognition and honor to the nursing profession."



Hanger "S", E and O Building, Important to Cape Operations

(Continued from page 1)

necessary facilities, storage and work areas, required to prepare the capsule for flight. All capsule instrumentation is the responsibility of MSC Cape Operations.

Organizational units involved in the preflight operations are: Launch Operations, Flight Control, Abort Considerations, Environmental Surroundings, Landing Considerations, Recovery and Human Factors.

Preflight operations for the spacecraft differ from the normal mode of operation of other missile operations at the Cape. Project Mercury operations follow more the pattern of the airplane approach. Personnel at the launch site have a detailed knowledge of the spacecraft including all of its many components.

This permits "on-the-spot" analyses of any troubles detected as well as "on-the-spot" design changes to rectify troubles if present. This concept is considered mandatory for the Mercury program in order to insure that adequate flight reliability be obtained with a reasonable schedule.

Due to the fact that highly competent personnel are on the spot they have authority to make changes to the spacecraft as required as long as the basic philosophy of design is not altered.

In cases where the basic philosophy is altered, the changes are coordinated with Manned Spacecraft Center and the McDonnell factory before they are effected.

Another deviation from normal missile operations is that systems engineers, rather than technicians conduct all systems tests. These engineers are able to evaluate the acceptability of the system from an engineering point of view, and can readily recognize any incompatibilities between the systems which might be created by slight changes from specification performance of the individual systems.

Spacecraft operations are conducted jointly by MSC and McDonnell personnel. MSC establishes the nature and scope of the testing from which McDonnell prepares detailed test procedures. These procedures are then used to conduct the various systems tests with MSC personnel assisting rather than observing, thus providing both optimum use of manpower and monitoring.

The capsule checkout area or "White Room" is an enclosed, electronically dust filtered, humidity controlled, air-conditioned area in which extreme cleanliness of all surfaces and clothing is required in order to provide minimum contamination of the capsule. (See pictures on Page 4).

Another interesting facet of the Hangar "S" facility is the altitude chamber which is used for capsule environmental control system checkout and verification of flight-worthiness in a high altitude environment. The hydrogen-peroxide tests (see pictures on page 5) are conducted in a small building located at the rear of the Hangar.

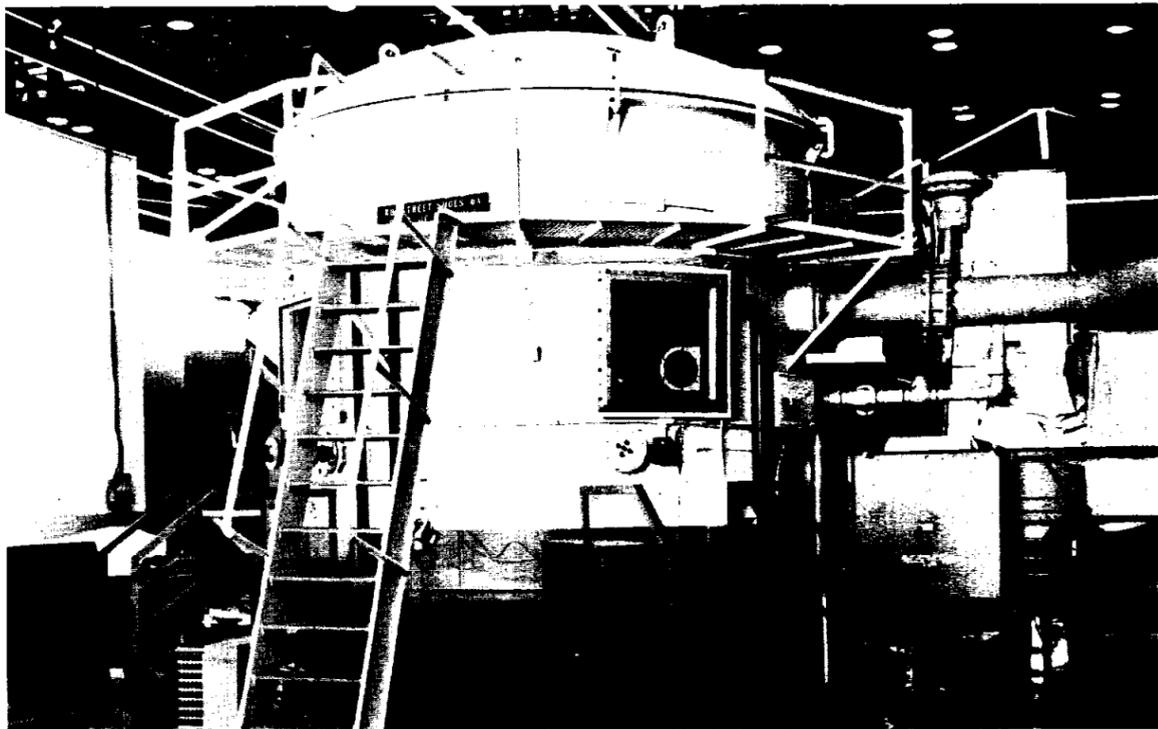
Other activities located in and around Hangar "S" include the Astronaut Crew Quarters (See page 2), the Aeromedical Laboratory, manned by Drs. David P. Morris and E. P. McCutcheon, Lt. Dolores O'Hara, and M/Sgt. Q. R. Herrin; Engineering Offices, and the Primate Trailers.

The spacecraft, launch-vehicle, and range operations are integrated by NASA Launch Coordination Offices. Contract inspection is provided for the spacecraft by McDonnell and for the Atlas by General Dynamics / Astronautics. Government inspection is also provided for the spacecraft by MSC and for the Atlas by the Air Force. This double inspection is geared toward assuring the flightworthy condition of the vehicle.

Range support is provided by the Air Force Atlantic Missile Range.



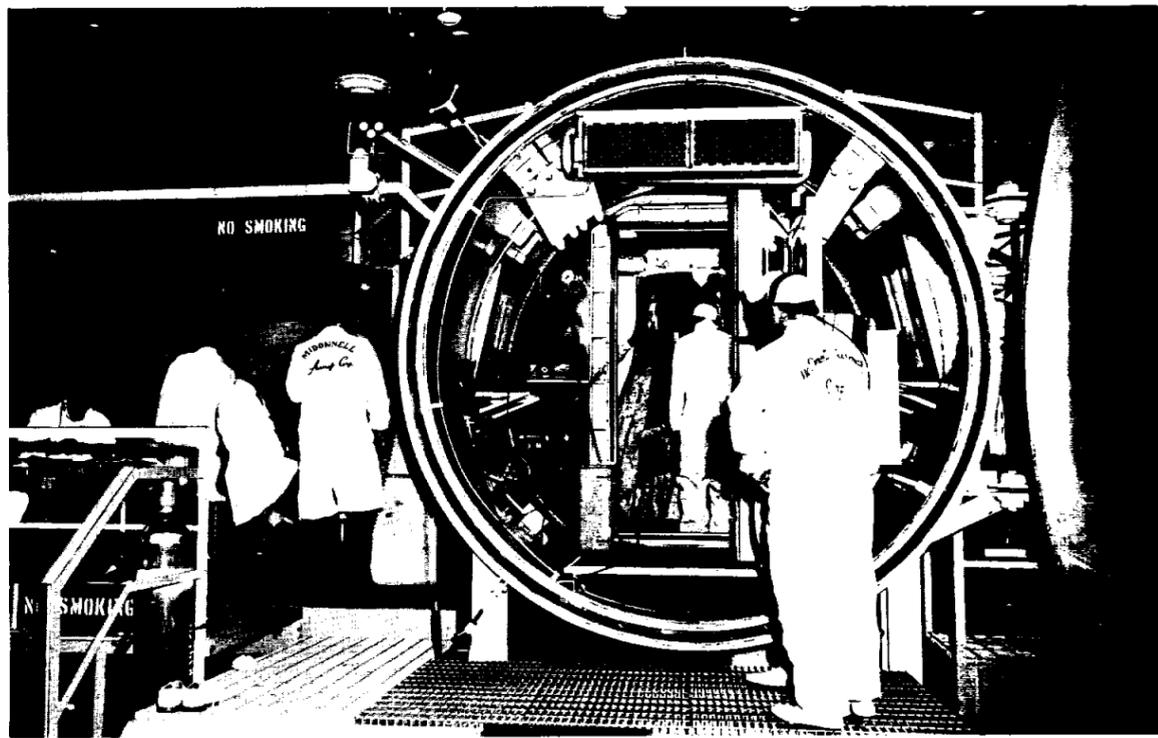
HANGAR "S" HOUSES the testing facilities and work areas required to insure the readiness of all capsule components prior to the final approval for flight.



AN EXTERIOR VIEW of the altitude chamber, used to verify the flight-worthiness of capsules in high altitude environment.

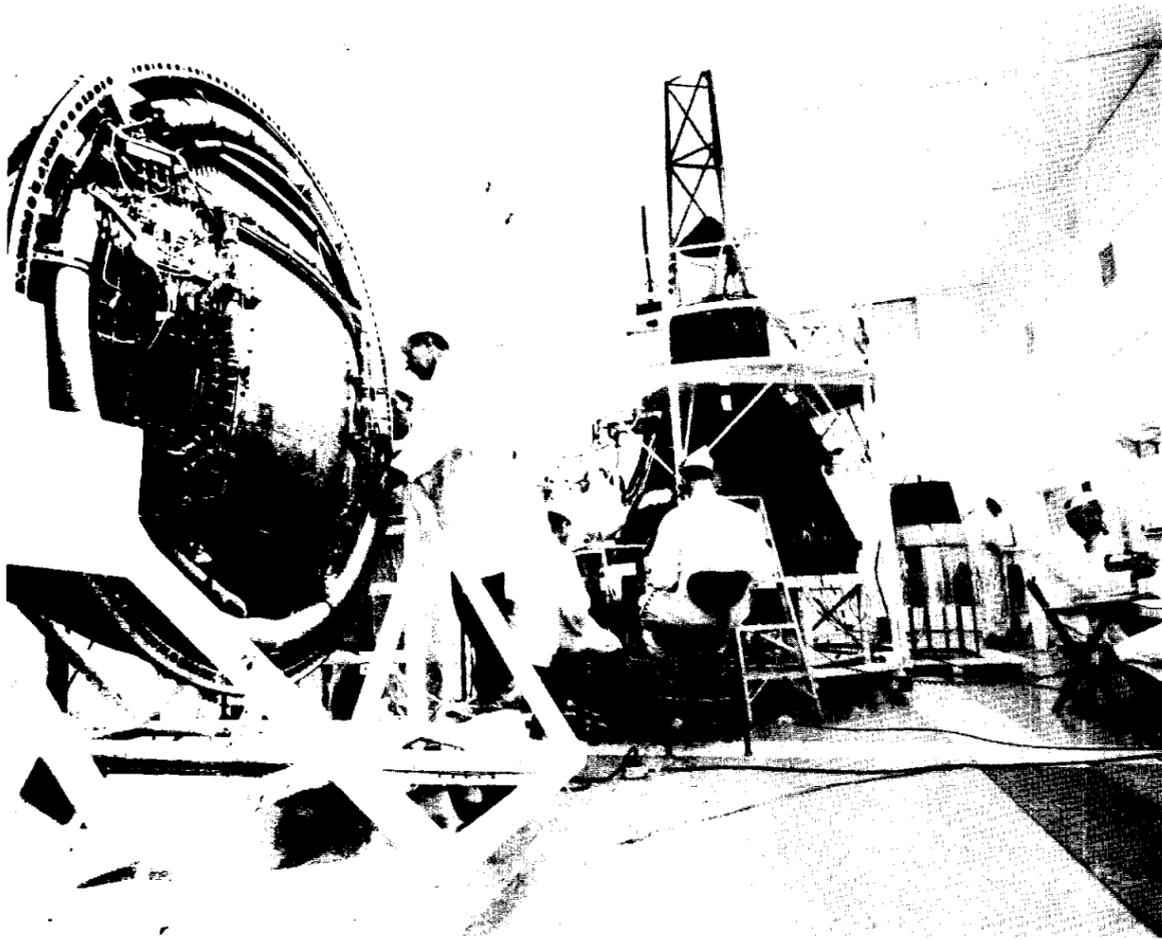


TECHNICIANS ASSIST the astronaut as he enters the capsule in the altitude chamber.



TECHNICIANS AND ENGINEERS prepare to record performances as an astronaut enters the capsule in the altitude chamber prior to a test run.

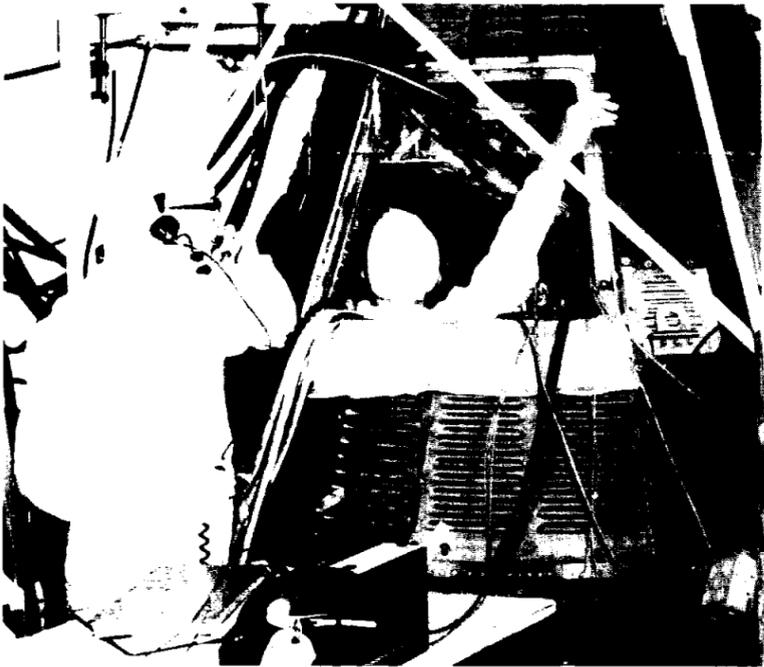
The "White Room" - A Spotless, Busy Work Area



AN OVERALL VIEW of the "White Room" shows engineers, technicians, and astronauts as they perform systems tests on several Mercury capsules in the spotless area.



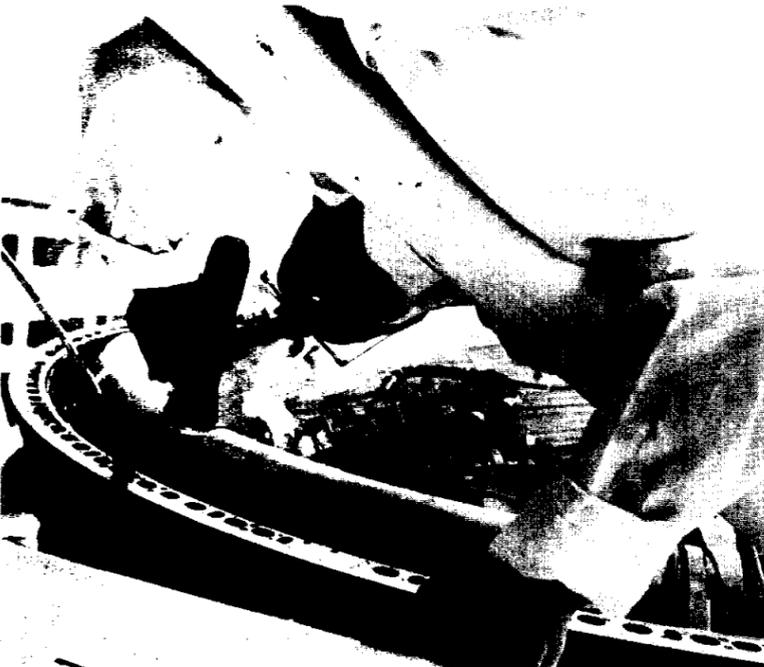
ASTRONAUTS Alan Shepard and John Glenn check the results of a systems check.



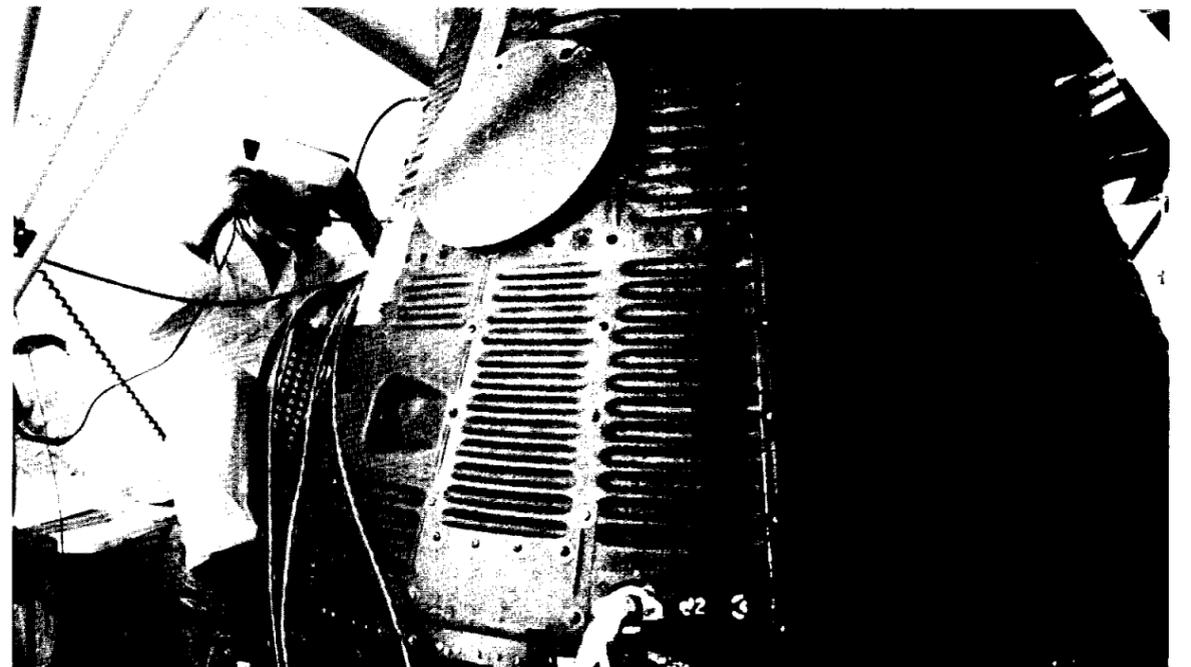
INTO THE CAPSULE goes Alan Shepard to observe the behavior of components during a systems checkout.



THE TEST OVER, Shepard looks at the results noted by the technician during the run.

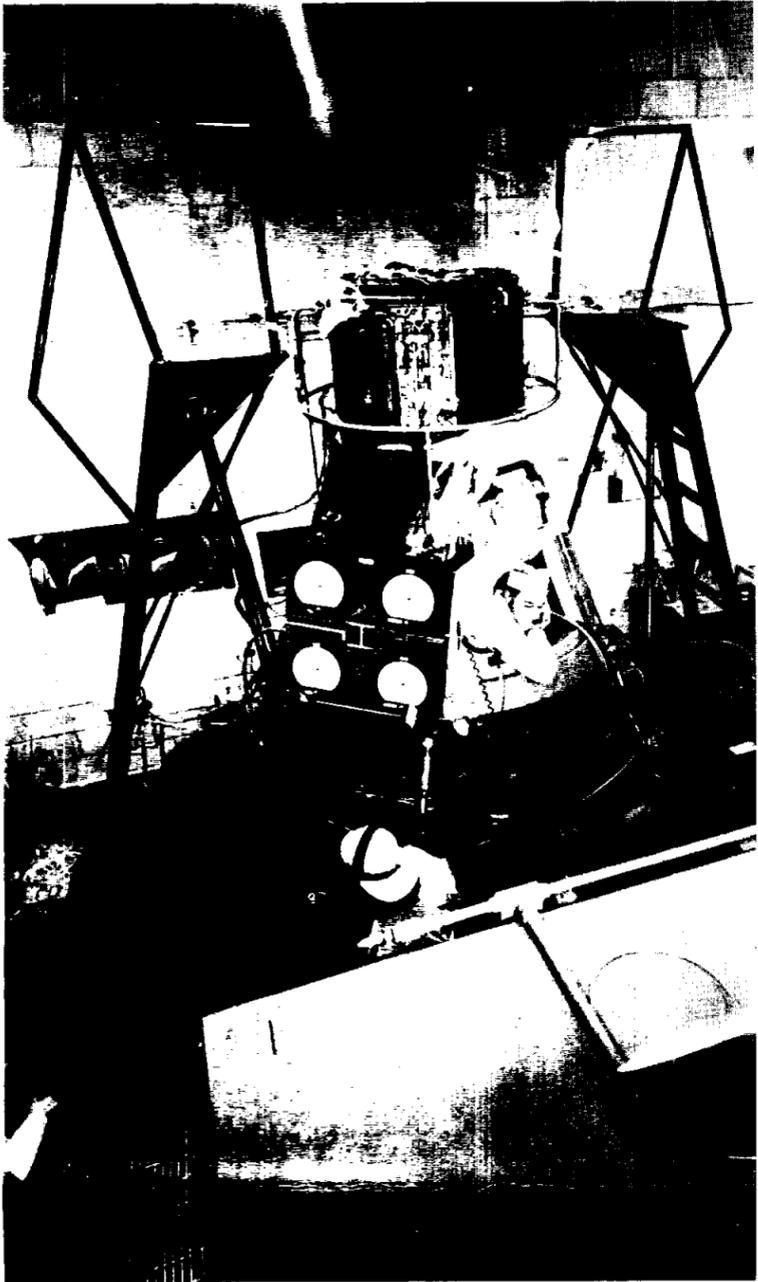


A CLOSE SCRUTINY of a Mercury component—the entire capsule is checked this closely.

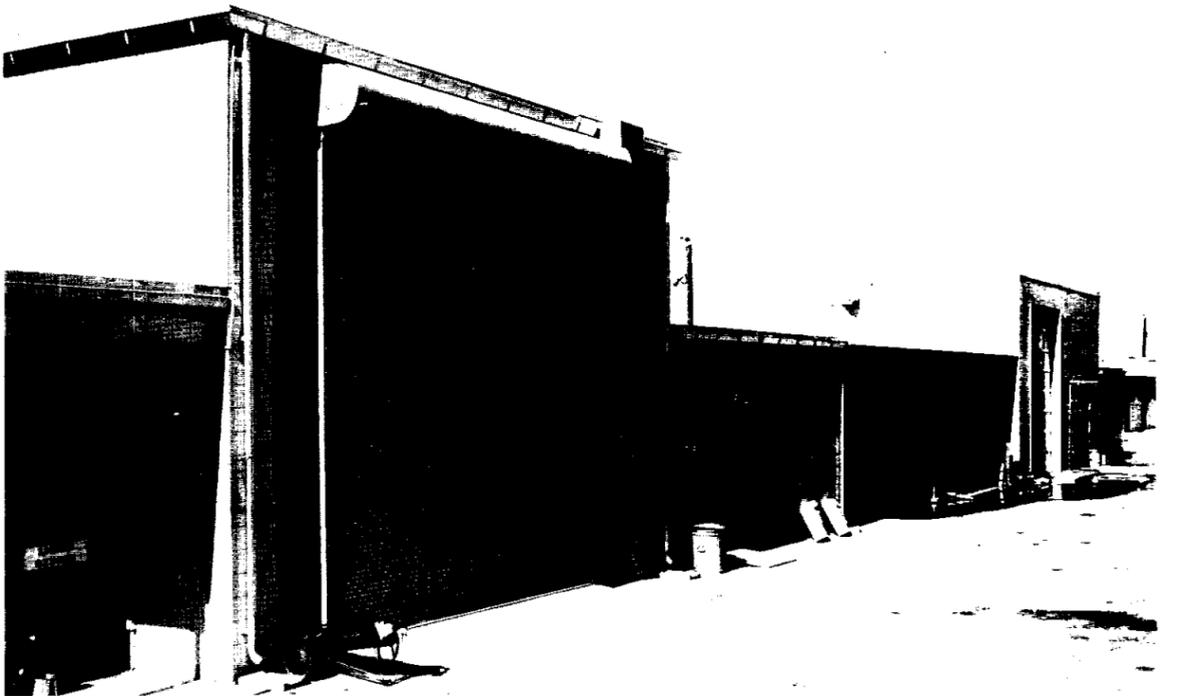


ASTRONAUT John Glenn dons a head-set while checking the performance of one of the many systems contained in a Mercury capsule.

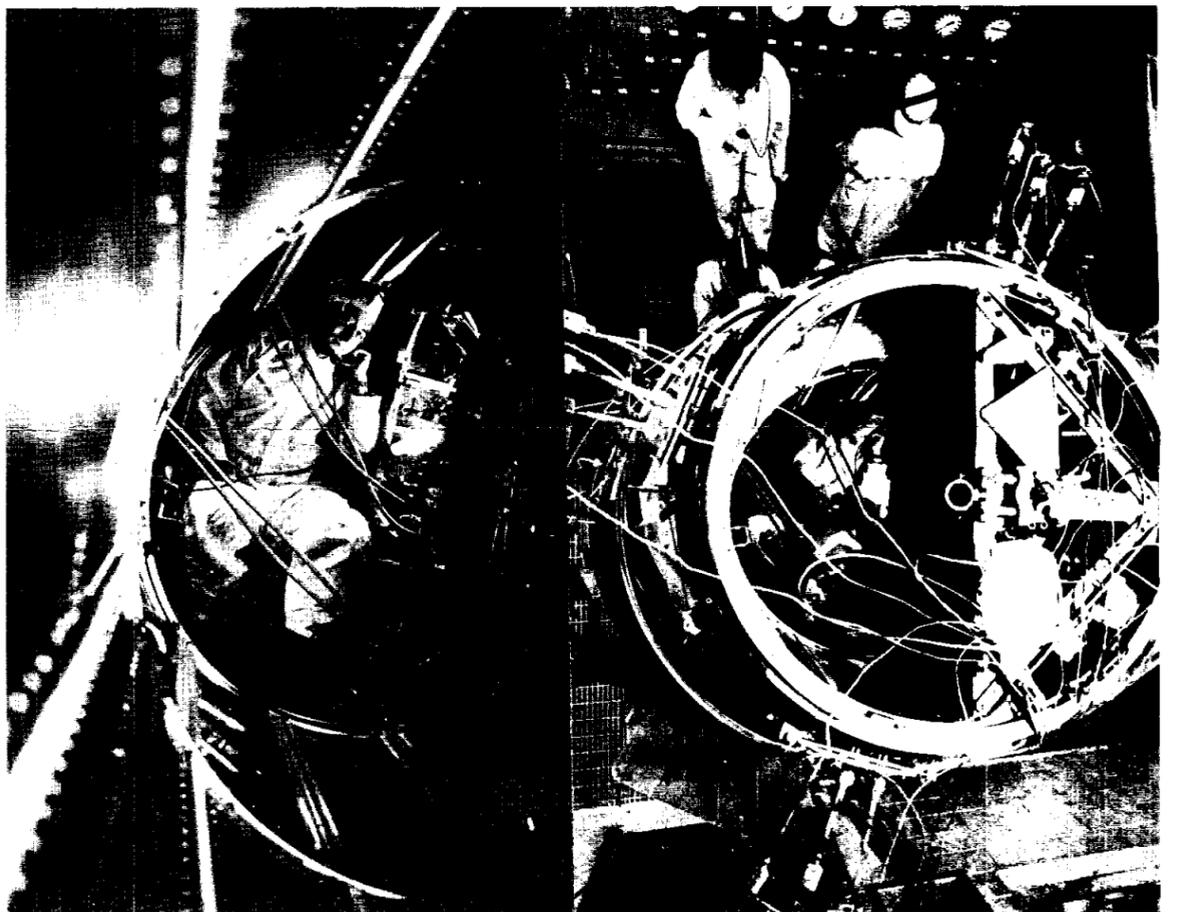
Reaction Control Test Area Cell Has Vital Role



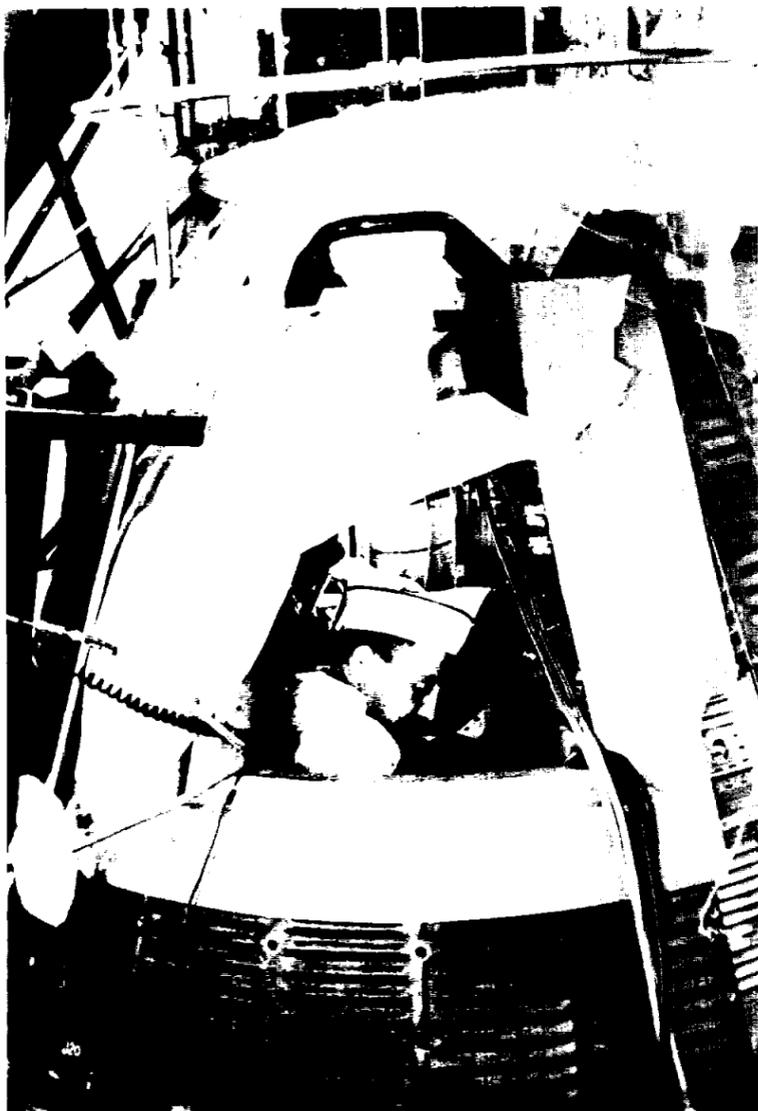
ASTRONAUT Virgil I. "Gus" Grissom is shown above just after entering a capsule undergoing tests in the Reaction Control Test Area Cell. Below is a close-up shot of Grissom in the capsule before the tests for pressure and leakage started.



AN EXTERIOR VIEW of the Reaction Control Cell area, located behind Hangar "S".



PICTURES FROM ABOVE show Gus inside through a maze of wires while technicians check performances.



TECHNICIANS CHECK closely on the results as the tests get underway.

The SPACE NEWS ROUNDUP, an official publication of the Manned Spacecraft Center, National Aeronautics and Space Administration, Langley Field, Va., is published for MSC personnel by the Public Affairs Office.

Director Robert R. Gilruth
 Public Affairs Officer John A. Powers
 Editor Ivan D. Ertel
 Staff Photographer Bill Taub

On The Lighter Side

Civil servants have often been accused of giving people double talk, the time honored run-around and many other things when the answers to questions are either not available or just cannot be given.

In order that all might conserve valuable time it is suggested that when queried the following might be of great advantage if used by numbers.

TABLE OF EXCUSES

1. That's the way we've always done it.
2. I didn't know you were in a hurry for it.
3. That's not in my department.
4. No one told me to go ahead.
5. I'm waiting for an O.K.
6. How did I know this was different?
7. That's his job, not mine.
8. Wait 'til the boss comes back and ask him.
9. I forgot.
10. I didn't think it was very important.
11. I'm so busy I just can't get around to it.
12. I thought I told you.
13. I wasn't hired to do that!

An old Indian stood on a hilltop with his son, looking over a beautiful valley below them. After a period of silence, the old Indian spoke: "Someday, my son, all this land will belong to the Indians again. White man all go to moon."

—Quoted in T & P Topics

"30 - Year Award"



THOMAS J. PORTER of the Supply Office, right, is shown as he received his 30-year service award pin from Assistant Director for Administration Wesley L. Hjernevik at MSC Headquarters last Monday. Twenty year service awards were made to 11 other MSC employees, 19 received 15 year awards, and 40 were recipients of 10 year awards. —Photo by Bob Nye

EDITORIAL EXCERPTS

BAYTOWN, TEX., SUN

The challenges of deep space travel and eventual colonization of the moon and possibly other planets have occupied the energies of scores of scientists and engineers for almost a decade.

Now the end results of this research will be evaluated and correlated at the National Aeronautics and Administrations's Manned Spacecraft Center at Clear Lake.

Because of spectacular successes achieved by America's rocket experts and other scientists, the time when a man (or men) will attempt to land on the moon is no longer in the distant future.

It is possible, say the experts, that America's first effort to land a man on the moon will be made within five years, maybe less. The groundwork is being laid, and its progress elates those who felt in the recent past that it would be years before man would be able to attempt a moon flight.

Although no rocket launchings will be conducted at the NASA lab at Clear Creek, the blueprint of the first moon rocket and all the details of manned space flight will be worked out there.

Probably nowhere else in the world will there be such a concentration of scientific "brains" as in the space lab buildings. Some of the nation's top scientists will be working there, and doubtless there will be hundreds of other less brilliant but highly capable specialists whose efforts will be needed to achieve mankind's greatest aim—a trip to the moon.

The people here are tremendously proud that this section of the country was selected as the place where man's golden dream will one day be realized.

While there are still numerous obstacles to hurdle before man will be able to sever the bonds that have bound him to this planet since the dawn of time, those in charge of the final effort have amazed even themselves by the strides they have made.

One of the questions uppermost in the minds of many people, however, is this: why go to the moon?

The reasons are simple. Man wants to go to the moon because such an adventure challenges him. He wants to go because he wants to continue his battle with the forces of nature. He wants to go because he does not believe man's ambition and capability of achievement are limited.

Had it not been for man's belief that he is the master of his destiny, there would have been no cars, no ships, no airplanes, no modern conveniences.

If man had not hitched his wagon to a star when he first breathed the breath of life, he would not now be unhitching it for a trip to the moon.

TRANSFERS TO HOUSTON

During the period November 14-20, six additional MSC personnel accomplished permanent change of station to the Houston area.

They are Roy C. Aldridge, Management Analysis; Charles R. Yetter and Ernest A. Gillam, Procurement and Supply; Doris S. Kreske, Personnel Office, Steno Seervices; and Joseph W. Kreske and Charles L. Wagner, Supply Office.

MSC PERSONALITY

G. Merritt Preston Is MSC Cape Chief



G. MERRITT PRESTON

WELCOME ABOARD

During the period 8-22 November the following people came aboard.

TRANSPORTATION: Claudia N. Drummond

MANAGEMENT ANALYSIS OFFICE: Denzel W. Sparkman

LIFE SYSTEMS DIVISION: Capt. Robie Hackworth (Cape Canaveral), Emory J. Meeks

CONSTRUCTION OFFICE: Thomas D. Conger, Raoul P. Lopez
 OFFICE OF THE DIRECTOR: J. Wallace Ould

PREFLIGHT OPERATIONS DIVISION: Roelof L. Schuiling (Cape Canaveral), George W. Little

FLIGHT SYSTEMS DIVISION: Carl Keppler III, Raymond H. Bradley, Robert M. Mason, C. Harold Lambert, Jr., Delores P. Brumberg, William A. Chandler, Joan G. Jones, Charles C. Filley, Orval P. Littleton, Jr., Benjamin Chereek.

PROCUREMENT AND SUPPLY: Eleanor Der Bing, Lois H. Padgett, Nadine E. Richie, Ronald C. Bake, Arthur E. Garrison, Queen E. Pope

PERSONNEL: Grace K. Winn
 STENOGRAPHIC SERVICES: Alexandra M. Macpherson, Elizabeth H. Armistead, Ann Mersereau, Carolyn Lively, Diane M. Oakley

TECHNICAL SERVICES: Edwin W. Wilson, Lyman O. Lee, Joe J. Elliott, Ian Paton, William R. DeShazor, Lester J. Eichmeier

BUDGET AND FINANCE OFFICE: Anna W. Toryak, Alice R. Barker, Margaret W. Koehler, Ester C. Kiel, Harriet E. Lathe

SUPPLY OFFICE: Thomas H. Hutchens, Donald Alcorns, Billy E. Calhoun

ADMINISTRATIVE SERVICES: Nicholas S. Jakir, Elizabeth M. Gillis

BUSINESS MANAGEMENT OFFICE: Thomas J. Cassias

TRAINING OFFICE: Richard M. Dunham

FLIGHT OPERATIONS DIVISION: Phyllis A. Tatum, Doris L. Urrutia, Wayne E. Koons, Capt. Robert O. Mercer.

G. Merritt Preston is the Chief of Pre-Flight Operations and Manager of Cape Operations for Manned Spacecraft Center.

A native of Athens, Ohio, he is a graduate of Rensselaer Polytechnic Institute, Troy, N.Y., with a Bachelor of Science degree in Aeronautical Engineering, and after his graduation in 1939 he entered government service at Langley Research Laboratory that same year.

From 1939 until 1942, he served with the Langley Laboratory in the Full Scale Wind Tunnel, then was transferred to the Lewis Flight Propulsion Laboratory.

From that time until 1945 his work was primarily concerned with the activities of the Altitude Wind Tunnel there. He was transferred to the Flight Research Section during that year and was made Chief of the Flight Research Branch in 1951.

Work Cited

His work has included engineering and research on aerodynamics, aircraft stability and control, engine operation and performance, aircraft operating problems, guided missiles, aircraft propulsion, and aircraft icing.

In addition he has participated in research and development programs on the P-38, P-39, P-40, XP-42, F-47, P-59, F-80, F2A, F4F, F7U, B-26, and B-29 aircraft.

He is the author of National Advisory Committee on Aeronautics Reports including a report on aircraft crash fire program entitled "Mechanism of the Start and Development of Aircraft Crash Fires."

Preston was the co-author and director of a 16 mm sound and color motion picture, "NACA Fire Research."

In January 1954 he presented a paper on the "Mechanism of the Start and Development of Aircraft Crash Fires" to the Saint Louis, Mo., Chapter of the Institute of Aeronautical Sciences, and in 1956 presented a paper on "Aircraft Crash - Safety Research" at the Packard Laboratory, Lehigh University, Bethlehem, Penna.

In March 1957, he presented a paper entitled "NACA Crash Survival Research" at an Institute of American Sciences meeting in Dayton, Ohio.

Invention Noted

Preston, along with I. I. Pinkel, Dugald O. Black, and Gerard J. Pesman (the latter two Manned Spacecraft Center employees) invented the Crash-Fire Ignition Source Inerting System.

He was the recipient of the Flight Safety Foundation Award in 1954 and received the Laura Tabor Barbour Award in 1956 for work in suppressing crash fires in reciprocating and turbo-jet powered aircraft and to find solutions to crash impact survival problems.

Preston is married to the former Grace Conley of Franklin, N.C. and they have two children: Lelia, 18, and John, 11.

His hobbies include woodworking, golf, scouting activities, sailing, and water skiing.



"Just one, please"



"I need a light"



"I never drop a drink"



A team effort



"I won't talk"



"I'll think it over"

"Chimpanzee Training Is a Very Tough Job Because They Are So Much Like People"

By: I. D. Ertel

"Training chimpanzees is a very difficult job for they are much like people," according to Air Force Sgt. Paul S. Allan of Port Huame, Calif.

Allan is currently at Cape Canaveral training the group of chimpanzees there which are potential candidates to be the passenger in the Mercury-Atlas 5 capsule.

Allan says that you cannot plan a schedule for the animals a day in advance and be certain you can follow the schedule—they either wake up in a good mood or in a bad mood and on this, to a degree, depends the activities for the day.

When told we would like a picture of Ham, the trainer said he would do his best but he would promise nothing. A few minutes later he emerged from Ham's van with an apparently docile little friend in tow—a friend that remained friendly during the course of having the flash in his eyes as several pictures were taken. When

Allan asked Ham to smile he was most cooperative.

Later, sitting in the Sergeant's trailer office while a shower passed, Allan suggested that Duane had been feeling good and that some pictures might be taken of him in the trailer after the shower passed.

He said that if any pictures were taken outside after the shower it would present problems since water is used as a reward during training and the chimpanzees love nothing better than to get some 'bonus' water.

Allan said that most people are prone to underestimate the intelligence of the chimps and offered an example of their ability to learn in a hurry. He cited the fact that shortly after the program was inaugurated there were about 15 in training and all were placed in special cages with combination locks on them.

In order to make it easier for the trainers all the locks were set to open on zero. After a short period

of time there were many hours used daily in chasing and retrieving the animals which had all been mysteriously released.

Finally it was determined that one of the chimps—Allan could not recall which one—had been able to tell by the sound when the lock would open. He then obtained his own liberty, and went down the line freeing all his simian mates.

When asked about the reputed strength of the chimps, Allan said that when one of them did not have the proper attitude toward training it could take as many as four men to get the desired activity accomplished. He pointed out that the chimps, which weigh about 40 pounds apiece, have five times the strength of a man.

Referring again to their intelligence, he pointed out that the animals never give anyone a real bad time when there are more than two people present because they know they cannot cope with more than two at a time.



"Really?"



"Now let's see"



Ham says, "I'm ready"



"Wotta ya waitin' for?"

Space News ROUNDUP!

SECOND FRONT PAGE

MSC Employee Is Speaker At Banquet for Prof. Oberth

A lifelong ambition was realized by Willard M. Taub, Aerospace Technologist of Flight Systems Division, when he was invited to attend and be a speaker at a testimonial banquet honoring Professor Hermann Oberth at Cleveland, Ohio, November 4. A distant relative of Oberth, Taub's parents had come from the same town in Transylvania and had been acquainted with the Oberth family in Transylvania and in this country for more than 50 years.

His twin brother, William P. Taub, also an MSC employee, assigned to the Office of the Director, was unable to attend the banquet due to duty requirements at Cape Canaveral on that date.

According to Willy Ley, an authority on the space age, Professor Oberth's first book, *The Rocket Into Interplanetary Space* published in 1923, and a second book, published in 1929 "provided nearly every space concept used today, all based on sound scientific theory and basic astromathematics: 1. Calculations of rocket thrust; 2. The use of alcohol, methane and hydrocarbon fuels with lox; 3. The step-rocket principle; 4. Eastward launchings to utilize earth's rotation for its extra 'free' velocity of 1,000 miles per hour; 5. Using the 'synergic curve', or arching from the vertical to the horizontal, to achieve the most economical orbit; 6. How space-stations could be used for orbit refueling prior to interplanetary voyages; 7. Spinning

a space-station to give the crew artificial gravity; 8. Suggesting centrifuges for training astronauts to withstand G-strains; 9. Basic aerodynamic data for how rocket-planes could negotiate both air and space; and 10. Predicting the use of satellites for mapping, meteorology, and radio-relays.

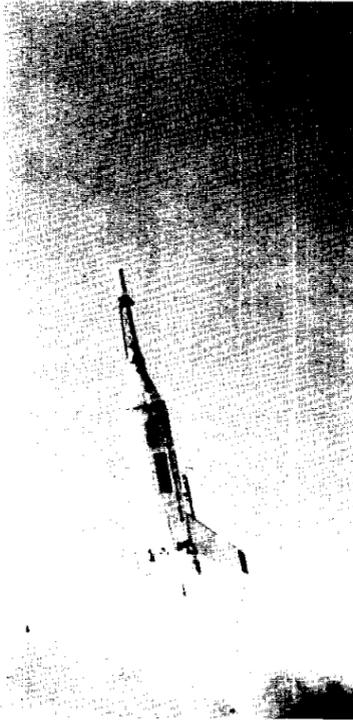
"Beyond those and other fundamentals Orberth's roving mind went into grander concepts still in our future today. As one example, he conceived the idea of giant mirrors in orbit to focus solar heat down on earth and melt icebergs—a concept which is just now being considered in the USA space program."

Ley credits Professor Oberth with being the true "father of the space age."

Oberth was in this country to attend the XII International Astronautical Congress in Washington, D. C., and the American Rocket Society Space Flight Report to the Nation in New York City.

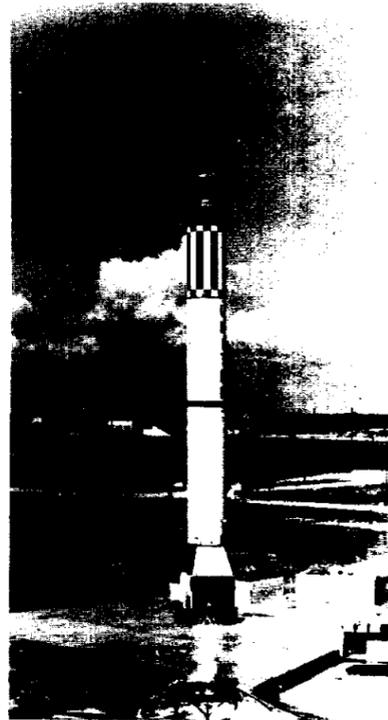
In 1955 he joined rocket development activities in Huntsville, Ala., but resigned from U. S. government service in 1958 and returned to Germany.

PROJECT MERCURY LAUNCH VEHICLES



LITTLE JOE

Data for Liftoff
Height
Thrust
Weight



REDSTONE

LITTLE JOE
52'
2 50,000 lb.
40,000 lb.



ATLAS

REDSTONE
83'
78,000 lb.
66,000 lb.

ATLAS
93'
360,000 lb.
260,000 lb.

TEXAS BANKER TO VISIT RELOCATION CENTER

Glen Cummings, Executive Assistant to the President of the Citizens National Bank, Baytown, Texas, will visit Manned Spacecraft Center Friday, December 1.

Cummings will be in the Relocation Center, Building T-107, Room 205, all afternoon to answer questions concerning Texas living for all interested employees of MSC and their families.

Housing Questionnaire Gives Answers to Houston Needs

Results of the "Housing Questionnaire for Transfers to Texas", distributed by the Personnel Office in October have revealed much interesting information as to the desires of the people concerned. Of the 562 employees who indicated they would transfer to Texas, 442 submitted responses to the questionnaire. This is approximately 78 per cent and the information should be valid as an indication of what the demands will be.

The questionnaire results, tabulated, reveal that about 47 per cent of those planning to move desire apartments, about 52 per cent plan to buy houses, and a few want trailer facilities.

Those desiring apartments have indicated they will use the following gauges in looking for a place to live:

COMMUTING TIME: 10-20 minutes from site, 32 per cent; 20-30 minutes from site, 50 per cent; and 30-40 minutes from site, 17 per cent.

APARTMENT TYPE: furnished apartments, 41 per cent; unfurnished apartments, 58 per cent; temporary apartments, 68 per cent; permanent apartments, 31 per cent.

RENTAL RANGE: \$60-\$70, 13 per cent; \$70-\$80, 21 per cent; \$80-\$90, 20 per cent; \$90-\$100, 19 per cent; \$100-\$115, 13 per cent; \$115-\$130, 8 per cent; \$130-\$160, 2 per cent; and \$160-\$190, less than 1 per cent.

ROOM REQUIREMENTS: 1 bedroom, 23 per cent; 2 bedrooms, 60 per cent; 3 bedrooms, 15 per cent; 4 bedrooms, less than 1 per cent; 1 bath, 85 per cent; 1½ baths, 11 per cent; and 2 baths, 3 per cent.

APPLIANCES DESIRED: Stove, 76 per cent; air conditioning, 74 per cent; oven, 73 per cent; refrigerator, 57 per cent; disposall, 36 per cent; dishwasher, 23 per cent; washer, 20 per cent; and dryer, 16 per cent.

The tabulation results of those indicating an intention of buying homes revealed the following information:

COMMUTING TIME: 10-20 minutes from site, 34 per cent; 20-

30 minutes from site, 47 per cent; and 30-40 minutes from site, 16 per cent.

PRICE RANGE: \$10,000 or under, 1 per cent; \$10,000-\$13,000, 6 per cent; \$13,000-\$16,000, 24 per cent; \$16,000-\$19,000, 28 per cent; \$19,000-\$22,000, 20 per cent; \$22,000-\$25,000, 14 per cent; \$25,000-\$28,000, 4 per cent; and more than \$28,000, 3 per cent.

HOME SPECIFICATIONS: new homes, 91 per cent; used homes, 9 per cent; brick homes, 98 per cent; frame homes, 2 per cent; 1 bath, 4 per cent; 1½ baths, 43 per cent, 2 baths, 53 per cent; ranch-style homes, 80 per cent; split-level homes, 14 per cent; 2-story homes, 5 per cent; 2-bedrooms, 8 per cent; 3 bedrooms, 64 per cent; and 4 bedrooms, 28 per cent.

APPLIANCES DESIRED: air conditioning, 97 per cent; stove 83 per cent; oven, 84 per cent; disposall, 61 per cent; dishwasher, 46 per cent; refrigerator, 43 per cent; washer, 24 per cent; dryer, 24 per cent; and freezer, 16 per cent.

(Editor's note: Figures can, on the surface, seem to prove some peculiar facts. Based on the preceding paragraph, it would seem that many MSC personnel would prefer to be cool than to eat.)

Those personnel answering the questionnaire, who are trailer owners, indicated that they would prefer to be located 10-30 minutes from the site and to pay monthly rentals of from \$25-\$50.

CONTRACT AWARDED

Recent contracts and research grants made by NASA included \$1,750,000 to the Massachusetts Institute of Technology to provide supplies and services for Manned Spacecraft Center's Project Apollo program.

"Mercury Cheerleaders"



LATEST "Fad-SHION" NOTED at Manned Spacecraft Center Headquarters arrived in the form of NASA-Project Mercury sweat shirts. A group of the self appointed "Mercury Cheerleaders" are pictured on the steps of Building T-107. Front row, left to right, Ann Hill, Security; Candy Honicker, Public Affairs; Marge Simonton, Emma Whitt, Amelita Jenkins, and Nancy Williams, all of Personnel. Back row, left to right, Frances Moore, Virginia Vohringer, and Louise Morewitz, all of Personnel Records; Jean Hayes, Payroll; Pat Coley, Public Affairs; and Madeline Forquer, Personnel.

—Photo by Bob Nye